WASHINGTON STATE DEPARTMENT OF AGRICULTURE

PESTICIDE MANAGEMENT DIVISION
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# Rules Relating to Fertilizers, Minerals and Limes
# Effective May 1, 1999

**WAC 16-200-695 Definitions**. The definitions set forth in this section shall apply throughout this chapter unless context otherwise requires:

(1) "Organic" means a material containing carbon and one or more elements (other than hydrogen and oxygen) essential for plant growth. When the term "organic" is utilized in the label or labeling of any commercial fertilizer, it shall be qualified as either "synthetic organic" or "natural organic," with the percentage of each specified.

(2) "Natural organic" means a material derived from either plant or animal products containing carbon and one or more elements (other than hydrogen and oxygen) essential for plant growth.

(3) "Synthetic organic" means a material that is manufactured chemically (by synthesis) from its elements and other chemicals, containing carbon and one or more elements (other than hydrogen and oxygen) essential for plant growth.

(4) "Unit" means one percent (by weight) of a ton.

(5) "AOAC" means the association of official analytical chemists.

(6)"Commercial fertilizer" means a substance containing one or more recognized plant nutrients and that is used for its plant nutrient content or that is designated for use or claimed to have value in promoting plant growth, and shall include limes, gypsum, and manipulated animal and vegetable manures. It does not include unmanipulated animal and vegetable manures, organic waste-derived material, and other products exempted by the department by rule.

(7) "Fertigation" means a method of applying commercial fertilizers with irrigation water to fertilize land or plants.

(8) “Fertilizer component” means a commercial fertilizer ingredient containing one or more recognized plant nutrients which is incorporated in the commercial fertilizer for its plant nutrient value.

(9) "Maximum acceptable cumulative metals additions to soil" means the amount of total metals that can be added to soil over a forty-five-year period of time without exceeding the Canadian standards which have been adopted in RCW 15.54.800(3) as Washington standards for metals.

(10) “Organic waste-derived material” means grass clippings, leaves, weeds, bark, plantings, prunings, and other vegetative wastes, uncontaminated wood waste from logging and milling operations, food wastes, food processing wastes, and materials derived from these wastes through composting. “Organic waste-derived material” does not include products that include biosolids.

(11) “Maximum application rate” means the maximum amount of commercial fertilizer expressed by weight (such as: pounds, ounces, kilograms, or milligrams) or volume (such as: gallons, quarts, fluid ounces, liters, or milliliters) to be applied to an area of a specified size (such as: acres, square feet, hectares, or square meters) in a period of time stated in years. (Effective May 1, 1999)

**WAC 16-200-705 Purpose.** The following sections concerning the protection of ground water, labeling requirements and examination of fertilizer minerals and limes (WAC 16-200-708 through 16-200-742) are established in this chapter under the authority of the Commercial Fertilizer Act, chapter 15.54 RCW.

This chapter also describes the requirements for registration of commercial fertilizers, including the information which must be submitted as part of the registration application, the sample preparation and analysis methods which must be used, the maximum application rates the department will use to determine whether a commercial fertilizer may be registered, the Washington standards for metals (in pounds per acre per year), and the acts which are unlawful under this chapter. (Effective May 1, 1999)

**WAC 16-200-7061 What information must I include with my registration application concerning total metals and application rates?** (1) You are required to submit the following metals information with your registration application:

(a) Total concentration of each metal in each commercial fertilizer reported in parts per million (PPM) which is equivalent to milligrams of metal per kilogram of fertilizer (mg/kg), or micrograms per gram;

(b) Copy of the laboratory report on total metals analysis;

(c) Method of analysis;

(d) Method of sample preparation; and

(e) Minimum detection limits for each method used.

(2) The department may request quality assurance and quality control documentation for analytical procedures and/or for the laboratory which performed the analyses.

(3) The analytical data and maximum application rate will be used to determine if a commercial fertilizer meets or exceeds the Washington standards for metals.

(4) For all commercial fertilizers that have application rates on their labels, the maximum application rate shall be disclosed for each commercial fertilizer on the registration application form. (Effective May 1, 1999)

**WAC 16-200-7062 What method must I use to analyze the total metals contained in my commercial fertilizer?** (1) You must prepare and analyze your commercial fertilizer using U.S. Environmental Protection Agency ("EPA") sample preparation method 3050B (except when preparing a sample for analysis of mercury*). You must analyze your commercial fertilizer for the total concentration of each of the following nine metals in each commercial fertilizer using one or more of the EPA analysis methods listed in Table 1. All methods are described in EPA's SW-846, Third Edition.

**Table 1. Acceptable Sample Preparation and Analysis Methods for Total Metals**

| Metal | Inductively Coupled Plasma (ICP) | Atomic Absorption | Inductively Coupled Plasma Mass Spectroscopy (ICP/MS) |
|---|---|---|---|
| Arsenic (As) | 6010, 6010A, 6010B | 7060A, 7061A | 6020 |
| Cadmium (Cd) | 6010, 6010A, 6010B | 7131A | 6020 |
| Cobalt (Co) | 6010, 6010A, 6010B | 7201 | 6020 |
| Lead (Pb) | 6010, 6010A, 6010B | 7420, 7421 | 6020 |
| Molybdenum (Mo) | 6010, 6010A, 6010B | 7480 | 6020 |
| Nickel (Ni) | 6010, 6010A, 6010B | 7520, 7521 | 6020 |
| Selenium (Se) | 6010, 6010A, 6010B | 7740, 7741A | 6020 |
| Zinc (Zn) | 6010, 6010A, 6010B | 7951 | 6020 |
| Mercury (Hg) | | 7470A, 7471A | |
| | | | |
| Sample Preparation | 3050B | 3050B | 3050B |

Copies of SW-846 Third Edition and all associated updates are available from: The Government Printing Office, Superintendent of Documents, Washington, DC 20402, (202) 512-1800, and from the Department of Commerce, National Technical Information Center, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650 or 800-553-NTIS.

*Since sample preparation method 3050B cannot provide for an analysis of mercury, when you prepare a sample for analysis of mercury you must use the sample preparation method established for analysis method 7470A when using method 7470A to analyze your sample and the sample preparation method established for analysis method 7471A when using method 7471A to analyze your product.

(2) Other sample preparation and analysis methods for total concentration of each metal in each commercial fertilizer may be used only under the following conditions:

(a) You must submit a request to the department, in writing, detailing the sample preparation and analysis methods, minimum detection limits and quality assurance, quality control documentation and a side-by-side comparison of the analysis results from the alternative method to one of the approved methods' analysis results of the same material; and

(b) The department, after reviewing the request, may approve the sample preparation or analysis method only if the capability of the method meets or exceeds the sensitivity and accuracy of the applicable method listed in the Table 1.

(3) Any commercial fertilizer product registered prior to the enactment of these provisions using any sample preparation or analysis method not authorized by subsection (1) or (2) must be registered in accordance with subsection (1) or (2) in the next annual commercial fertilizer registration cycle. (Effective January 31, 1999)

**WAC 16-200-7063 How will the department determine whether a commercial fertilizer meets Washington standards for metals? (**1) To determine whether a commercial fertilizer meets Washington standards for metals, the department will use the following formula:

$$\frac{\text{Pounds of product applied per acre per year X metal content of product (ppm)}}{1{,}000{,}000}$$

The number used for pounds of product applied per acre per year will be the maximum application rate allowed by the commercial fertilizer label. If specific label directions for use are not available, the department will use the Washington application rates listed in subsection (2) of this section, divided by four.

(2) Using normal agronomic rates that are representative of soil, crop rotation, and climatic conditions in Washington state, the department developed the following Washington application rates:

| **Nutrient** | **4 Yr. Cumulative Total (lbs./acre)** |
|---|---|
| Nitrogen (N) | 1600 |
| Phosphorous (as P2O5) | 700 |
| Potassium (as K2O) | 1600 |
| | |
| Boron (B) | 12 |
| Calcium (Ca) | 800 |
| Chlorine (Cl) | 300 |
| Copper (Cu) | 10 |
| Iron (Fe) | 80 |
| Magnesium (Mg) | 400 |
| Manganese (Mn) | 40 |
| Molybdenum (Mo) | 4 |
| Sulfur (S) | 400 |
| Zinc (Zn) | 30 |
| | |
| Lime (CaCO3 equivalent) | 20,000 |
| Gypsum (CaSO4) | 16,000 |

(3) To ensure that the maximum acceptable cumulative metals additions to soil are not exceeded, the department will assume the commercial fertilizer will be applied at the maximum rate as stated on the label or established in this rule. (Effective January 31, 1999)

**WAC 16-200-7064 What are the Washington standards for metals?** (1) The standards for metals in Washington are the maximum acceptable annual metals additions to soils adopted in RCW 15.54.800 and are presented in Table 2. Because the Canadian standards contained in the Canadian Trade Memorandum T-4-93 dated August 1996 are based on long-term (forty-five-year) cumulative metals additions to soils, the maximum acceptable annual metals additions to soils are determined by dividing the Canadian standards by forty-five. The Washington standards are expressed as pounds per acre per year.

**Table 2. Washington Standards For Metals.**

| Metals | Lbs./acre/yr. |
|---|---|
| **Arsenic (As)** | **.297** |
| **Cadmium (Cd)** | **.079** |
| **Cobalt (Co)** | **.594** |
| **Mercury (Hg)** | **.019** |
| **Molybdenum (Mo)** | **.079** |
| **Nickel (Ni)** | **.713** |
| **Lead (Pb)** | **1.981** |
| **Selenium (Se)** | **.055** |
| **Zinc (Zn)** | **7.329** |

(2) To be registered with the department and distributed in Washington, a commercial fertilizer must not exceed the above standards. Because cobalt (Co), molybdenum (Mo), and zinc (Zn) are also plant nutrients, higher concentrations than those presented in the table may be permitted. Commercial fertilizers which contain cobalt (Co), molybdenum (Mo), and/or zinc (Zn) concentrations may be registered and distributed in Washington if those metals are used as plant nutrients and those metals meet all applicable minimum guarantees and labeling requirements of chapter 15.54 RCW and the rules adopted thereunder.

(3) If a commercial fertilizer contains cobalt (Co), molybdenum (Mo), or zinc (Zn) and any one or more of those metals are not intended to be used as a plant nutrient, then the nonplant nutrient metals must meet the Standards shown in Table 2. (Effective January 31, 1999)

**WAC 16-200-708 Unlawful acts.** (1) It shall be unlawful for any person to refuse or neglect to comply with the provisions of the applicable sections of chapter 15.54 RCW, the rules adopted thereunder, or any lawful order of the department.

(2) It is unlawful to distribute a commercial fertilizer in Washington that exceeds the standards for nonnutritive substances established in RCW 15.54.800(3). The department will determine if a commercial fertilizer exceeds the standards by using the maximum application rates and by either:

(a) Comparing data submitted by the registrant to the standards established in WAC 16-200-7064; or

(b) Comparing the results of the analysis of an official sample to the standards established in WAC 16-200-7064. Official samples will be analyzed by the methods set forth in these rules. (Effective January 31, 1999)

**WAC 16-200-711 Plant nutrients in addition to nitrogen, phosphorus and potassium.** (1) Plant nutrients, other than nitrogen, phosphorus and potassium, when mentioned in any form or manner shall be registered and shall be guaranteed on the label. Guarantees shall be made on the elemental basis. Sources of the elements guaranteed shall be shown on the label. Proof of availability shall be provided the director upon request. Except guarantees for those water soluble nutrients labeled solely for hydroponic or continuous liquid feed programs, the minimum percentages which will be accepted for registration are as follows:

| Element | % |
|---|---|
| Calcium (Ca) | 1.0000 |
| Magnesium (Mg) | 0.5000 |
| Sulfur (S) | 1.0000 |
| Boron (B) | 0.0200 |
| Chlorine (Cl) | 0.1000 |
| Cobalt (Co) | 0.0005 |
| Copper (Cu) | 0.0500 |
| Iron (Fe) | 0.1000 |
| Manganese (Mn) | 0.0500 |
| Molybdenum (Mo) | 0.0005 |
| Sodium (Na) | 0.1000 |
| Zinc (Zn) | 0.0500 |

(2) Guarantees or claims for the plant nutrients listed in subsection (1) of this section are the only ones which shall be accepted by the department. Proposed labels and directions for the use of the fertilizer shall be furnished to the department with the application for registration upon request. Any of the above listed elements which are guaranteed shall appear in the order listed immediately following guarantees for the primary nutrients of nitrogen, phosphorus and potassium.

(3) A warning or caution statement may be required on the label for any commercial fertilizer containing more than 0.1% boron or more than 0.001% molybdenum. The following are examples of possible warning or caution statements:

(a) Boron:

(i) This fertilizer contains boron which may be injurious to certain crops. Contact your local county agent or field consultant for specific information.

(ii) WARNING: This fertilizer carries added borax and is intended for use only on alfalfa. Its use on any other crops or under conditions other than those recommended may result in serious injury to the crops.

(b) Molybdenum: CAUTION: This fertilizer is to be used only on crops which respond to molybdenum. Crops high in molybdenum are toxic to grazing animals (ruminants). (Order 1952, Effective October 17, 1987)

**WAC 16-200-715 Fertilizer labels.** The following information, in the format presented, is the minimum information required for all fertilizer labels. For packaged products, this information shall either appear on the front or back of the package; or occupy at least the upper-third side of the package; or be printed on a tag and attached to the package. This information shall be in a readable and conspicuous form. For bulk products, this same information in written or printed form shall accompany delivery and be supplied to the purchaser at time of delivery.

(1) Net weight.

(2) Brand.

(3) Grade (provided that the grade shall not be required when no primary nutrients are claimed.)

(4) Guaranteed analysis*

Total Nitrogen (N)**. . . . . ___%

___% ammoniacal nitrogen
___% nitrate nitrogen
___% water insoluble nitrogen
___% urea nitrogen
___% (other recognized and determined forms of N)

Available Phosphoric Acid (P2O5). . . . . ___%

Soluble Potash (K20). . . . . ___%

(Other nutrients, elemental basis)*** . . . . . ___%

(5) Sources of nutrients guaranteed on the label shall be listed below the completed guaranteed analysis statement.

(6) Name and address of registrant.

* Zero guarantees shall not be made and shall not appear in the statement.

** If chemical forms of nitrogen are claimed or required, the form shall be shown and the percentages of the individual forms shall add up to the total nitrogen percentage.

*** As prescribed by WAC 16-200-711. (Order 1952, Effective October 17, 1987)

**WAC 16-200-721 Slowly released plant nutrients.** (1) No fertilizer shall bear a statement that connotes or implies that certain plant nutrients contained in a fertilizer are released slowly over a period of time, unless the nutrient or nutrients are identified and guaranteed.

(2) Types of products with slow release properties recognized are:

(a) Water insoluble (nitrogen products only), such as natural organics, ureaform materials, urea-formaldehyde products, IBDU, oxamide, etc.;

(b) Coated slow release, such as sulfur coated urea and other encapsulated soluble fertilizers;

(c) Occluded slow release, where fertilizers or fertilizer materials are mixed with waxes, resins, or other inert materials and formed into particles; and

(d) Products containing water soluble nitrogen such as ureaform materials, urea-formaldehyde products, methylenediurea (MDU), dimethylenetriurea (DMTU), dicyanodianide (DCD), etc.

(3) The terms "water insoluble," "coated slow release," "slow release," "controlled release," "slowly available water soluble," and "occluded slow release" are accepted as descriptive of the products listed in subsection (2) of this section; however the registrant can show a testing program substantiating the claim (testing under guidance of experiment station personnel or a recognized reputable researcher acceptable to the director). A laboratory procedure, acceptable to the director for evaluating the release characteristics of the product(s)

shall also be provided by the registrant upon request.

(4) When the nitrogen is organic, it shall be established that if a label states the amount of organic nitrogen present in a phrase, such as "nitrogen in organic form equivalent to X%N, "then the water insoluble nitrogen guarantee shall not be less than sixty percent of the nitrogen so designated. For example: If the total nitrogen guarantee for a fertilizer is ten percent and the label states "Nitrogen in organic form equivalent to 2.5% N" then the water insoluble nitrogen guarantee shall not be less than 1.5% (2.5% x 0.6 = 1.5%).

(5) When a slowly released nutrient is less than fifteen percent of the guarantee for either total nitrogen (N), available phosphoric acid ($P_2O_5$), or soluble potash ($K_2O$), as appropriate, the label shall bear no reference to such designations.

(6) AOAC method 2.074 (13th Edition), or as designated in subsequent editions, shall be used to confirm the coated slow release and occluded slow release nutrients and others whose slow release characteristics depend on particle size. AOAC method 2.072 (13th Edition) or as designated in subsequent editions, shall be used to determine the water insoluble nitrogen of organic materials. (Order 1952, Effective October 17, 1987)

**WAC 16-200-725 Commercial fertilizer definitions.** Except as the director designates otherwise in specific cases, the names and definitions for commercial fertilizers shall be those adopted by the association of american plant food control officials. (Order 1952, Effective October 17, 1987)

**WAC 16-200-731 Commercial Value of Plant Nutrients.** The commercial values used in assessing penalties for plant nutrient deficiencies are as follows:

| (1) Fertilizer Materials | Commercial Value ($/Unit) | | |
|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ |
| Urea | 4.20 | | |
| Ammonium Nitrate (33.5% - 34% N) | 4.75 | | |
| Ammonium Sulfate | 3.27 | | |
| Ammonium Phosphate: | | | |
| 16-20-0 | 5.61 | 5.61 | |
| 18-46-0 | 4.81 | 4.81 | |
| 11-52-0 | 4.68 | 4.68 | |
| 11-55-0 | 4.63 | 4.63 | |
| Triple Superphosphate (45% - 46% P205) | | 5.25 | |
| Muriate of Potash (60% - 62% K20) | | | 2.17 |
| Potassium Sulfate (50% - 53% K20) | | | 6.64 |
| Sulfate of Potash-Magnesia | | 8.20 | |
| Anhydrous Ammonia (82% N) | 3.00 | | |
| Urea ammonium nitrate (32-0-0) | 4.62 | | |
| Aqua Ammonia (20-0-0) | 3.00 | | |
| Ammonium Thiosulfate (12-0-0) | 5.00 | | |

| | | |
|---|---|---|
| Ammonium Polyphosphate (10-34-0) | 6.00 | 6.10 |

If the commercial value of any of the fertilizer materials listed above varies by more than 10% of the actual invoice value of the lot sampled, the registrant may request that the invoice be used in determining the commercial value of the fertilizer. The request must be accompanied by a copy of the invoice.

(2) Relative values for macronutrients:

| | Commercial Value ($/Unit) | | |
|---|---|---|---|
| | N | $P_2 0_5$ | $K_2 0$ |
| Dry blend nonspecialty fertilizer (not listed in (1) above) | 4.48 | 5.16 | 2.74 |
| Liquid blend nonspecialty fertilizer (not listed in (1) above) | 3.93 | 5.96 | 2.74 |
| Dry blend specialty fertilizer | 18.96 | 18.96 | 18.96 |
| Liquid blend specialty fertilizer | 18.96 | 18.96 | 18.96 |

(3) Values used for determining and assessing penalties for secondary and minor plant nutrients shall be determined from the sales invoice. (Order 1952, Effective October 17, 1987)

**WAC 16-200-735 Breakdown of plant elements within the guaranteed analysis.** When a plant nutrient guarantee is broken down into the component forms, the percentage for each component shall be shown before the name of the form. For example: 4% Nitrate Nitrogen. (Order 1952, Effective October 17, 1987)

**WAC 16-200-739 Brand name.** The addition of another prominent name or design to a registered brand (other than descriptive words associated with the grade) shall constitute a new and different brand. For example: Blue Bird 5-10-10 vs. John Doe Blue Bird 5-10-10. (Order 1952, Effective October 17, 1987)

**WAC 16-200-742 Fertigation.** The following shall apply to fertigation:

(1) Any irrigation system used for fertigation shall contain the following functional equipment:

(a) A backflow prevention device or system in the water supply line, upstream from the point of fertilizer introduction. Discharge of water into a reservoir tank prior to fertilizer injection is acceptable: PROVIDED, That there is an air gap between the outlet end of the fill pipe and the top (or overflow rim) of the reservoir tank of at least twice the diameter of the fill pipe;

(b) An automatic, quick-closing check valve in the fertilizer injection pipeline to prevent the flow of the liquid back toward the injection pump;

(c) A normally closed, solenoid-operated valve located on the intake side of the injection pump, connected with the system interlock to prevent fluid from being withdrawn from the supply tank during shutdown;

(d) An interlocking control to automatically shut off the injection pump when the water

pump stops or when water pressure decreases to a point where fertilizer distribution is affected;

(e) A metering pump fitted into the system interlock specified in (d) of this subsection.

(2) The department may issue permits exempting specific irrigation systems or locations from requirements of subsection (1) of this section: PROVIDED, That alternative technology is substituted which will adequately fulfill the function of each waived requirement. In evaluating a permit request, the department may consult qualified engineers and Washington State University personnel. (Order 2066, WSR 91-01-015, Effective January 7, 1991)